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FEASIBILITY STUDY

US 421, Guilford County
From NC 68 to SR 2001
R-2611

Prepared by
Planning and Research Branch
Division of Highways
N. C. Department of Transportation

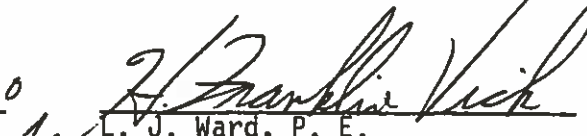


R. J. Booker, III
Project Planning Engineer



R. G. Dawson, Jr., P. E.
Head of Feasibility & Special
Studies Unit

4/3/90
Date



for L. J. Ward, P. E.
Manager, Planning and Research

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I. DESCRIPTION

This report covers a preliminary study of the proposed upgrading of US 421 in Guilford County from NC 68 to SR 2001 in Colfax, a distance of approximately 3.6 miles. The project is included in the current Transportation Improvement Program for feasibility and/or right of way protection but is not currently funded.

II. PURPOSE OF PROJECT

Existing Route Characteristics

US 421 is designated as a rural major collector in the North Carolina Functional Classification System, and is classified as a major thoroughfare in the Greensboro Urban Area Thoroughfare Plan. In addition to connecting Kernersville with Greensboro US 421 provides radial access to each town from Guilford and Forsyth Counties.

The studied section of road is basically a 22-foot pavement with variable 5 to 10-foot grassed shoulders. It is built on relatively flat terrain and has four horizontal curves of 6° and one of 12°. It widens to three 11-foot lanes at the Colfax Elementary School to provide a lane for left hand turns.

The speed limit at the beginning of the project is 55 mph, reduces to 45 mph at SR 1887 (Little Sandtee Road), and becomes 35 mph at the Colfax Elementary School and continues through Colfax.

Roadside development is generally light residential with scattered businesses, 2 churches, and a school. Development increases through the town of Colfax which includes a fire department and post office. The Southern Railroad parallels US 421 on the south side at varying distances from the project. Development occurs between the railroad and US 421 for most of the project length.

III. OTHER PROGRAMMED PROJECTS AFFECTING US 421

The portion of US 421 from NC 68 east to SR 1546 is included in the North Carolina Department of Transportation's 1990 to 1996 Transportation Improvement Program for upgrading to a 5-lane cross section. This project (U-800) will improve US 421 to a 64-foot face to face of curbs section. Right-of-way is scheduled for Federal Fiscal year (FFY) 1994 with construction scheduled for FFY 1996.

Traffic Volumes, Capacity, and Accident Record

Current traffic volumes range from 8000 vehicles per day (VPD) near NC 68 to 10,000 VPD just west of Colfax. Traffic volumes beyond the project limit at SR 2001 drop significantly. By the year 2010, it is estimated that traffic volumes will range from 14,000 to 16,000 VPD within the project limits. These volumes exceed the capacity of the current two-lane roadway. The provision of additional lanes will alleviate congestion and provide improved access to adjacent development.

During the period from January 1, 1986 through November 30, 1989, a total of 65 accidents were reported along the studied portion of US 421, yielding a total accident rate of 116 accidents per hundred million vehicle miles. This compares with a statewide average of 188 accidents per hundred million vehicle miles over the same time period. There were no fatalities during the period, and 28 of the accidents resulted in injuries. The primary accident types involved were running off the road, angle, and rear-end collisions which accounted for over 60% of the recorded accidents.

Need for Project

The existing two-lane width along US 421 is not sufficient to handle the increasing traffic volumes. Widening of the facility will not only increase the capacity, but will enhance driver safety and comfort along the route.

IV. RECOMMENDATIONS AND COSTS

The widening of US 421 between NC 68 and SR 2001 to a multi-lane facility is highly desirable. The recommended cross section is a five-lane, 64-foot, face to face of curbs, roadway. Acquisition of an estimated 100-foot right-of-way width will be necessary to contain construction. Symmetrical widening about the center line of the existing roadway is recommended for most of the project. Widening to the north side is recommended at those places where the project would otherwise encroach on railroad right-of-way.

The estimated costs of this project are as follows:

Construction	\$4,600,000
Right of Way	2,900,000
TOTAL:	<u>\$7,500,000</u>

The construction cost includes engineering and contingencies, and the right-of-way cost includes relocation, acquisition, and utility costs. Cost estimates were prepared by the Preliminary Estimate Engineer and the Right-of-Way Branch.

V. ALTERNATIVES CONSIDERED

Since the proposed project involves the widening of an existing highway, no alternative alignments were considered.

A four-lane cross section was considered for the improvement to US 421. The four-lane alternative would cost less than the recommended five-lane cross section, but the interference of existing driveways and side streets and the turning traffic which they generate would create a capacity deficiency on this section before the end of the planning period. Without the center turn lane, the roadway would not only have a capacity deficiency, but would have a higher accident potential due to the high number of turns. Drivers are accustomed to using the left lane of a highway as a high speed through lane and are not expecting vehicles to be stopped or turning from this lane. The four-lane cross section would not appreciably lessen the accident potential for rear-end and angle collisions over the present roadway, and these have been the predominant types of accidents on this highway in the past. Due to the inadequate capacity, the difficulty of turning into adjacent development, and the higher accident potential, a four-lane cross section is not recommended.

VI. ENVIRONMENTAL EFFECTS

The most significant impact to the environment is the relocation of 10 residences and 4 businesses. Other impacts will be primarily related to the actual construction of project and will cease upon completion of the project. These include minor erosion and siltation, increased noise levels from construction machinery, and delay and inconvenience to motorists.

VII. FUTURE ACTIVITIES

If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning/environmental document prior to that time, and a final decision made as to the most appropriate improvement.

BB/rm

